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Industrial FINISHING

Reg. U. S. Pat. Off.

Devoted to Product Finishing in the Factory

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Letters from Readers of "Industrial Finishing"

The names and addresses of firms or individuals whose letters and inquiries appear in this department may be had by writing this office, or letters addressed to them in care of this office will be forwarded promptly.—The Editor.

Floating Lacquers

Referring to your letters from readers . . . will you please tell us the names of suppliers of floating lacquers?—O. Q. Co.

Varnish, Lacquer Strainers

We are interested in procuring patented strainers that carry an advertisement on same. These are to be distributed with our line of paints, for straining purposes. We are desirous of obtaining the names of manufacturers of this item.—I. & G. Inc. (Mfr. of Lacquers).

Dipping Machines

We believe you have carried advertisements in INDUSTRIAL FINISHING of manufacturers of lacquer-dipping machines. If you have the names and addresses of any company or companies making such machines, we would appreciate your letting us have them.—S. T. X. Co. (Mfr. of Finishes).

Water Spray Booth

Referring to your INDUSTRIAL FINISHING of April, 1934, page 11, an article concerning the Water Booth for paint spraying by William J. Miskella, will you please advise where we can obtain further information and details concerning the manufacturer and detail designs of such a booth. We may be able to use such a booth and would like to obtain detail instructions on how to build one, or the name of a manufacturer who builds it.—S. N. Co. (Motor Trucks & Buses).

Automobile Finishing

I would like to obtain general information as to the principal processes and systems whereby mass-production automobiles are painted. Can you refer me to any standard textbook, or better, to any articles in your own or other periodicals dealing with the subject? I am particularly interested in the following points:

1) The "flowing process": As near as I have been able to gather, this process consists in pouring the lacquer onto the automobile and allowing it to drain. Am I correct?

2) What attempts have been made to do the painting of large irregular surfaces—such as automobile bodies—entirely by automatic machinery? We are engaged in the development of a . . . motor control capable of automatically producing any arbitrarily predetermined motion — such as that which would be given by a workman to an airbrush in painting a car—and I would like to find an application for it in the painting field. Our control mechanism can be located half a mile from the machine, and an amplifier and recorder, capable of putting a 6° of freedom brush-handling mechanism through a half-hour program, can be compressed into 2-cu.ft.

If you can refer us to any articles that will shed any light on our problem, we will very much appreciate it.—X. Q.

Bobbin Finish

In your issue of INDUSTRIAL FINISHING for September, we are interested in the article on "Finishing

BAKING SYNTOL

THE MODERN SYNTHETIC FINISH IN CLEAR AND COLORS

THIS COLORFUL FINISH IS USED TO CREATE "BUY APPEAL" FOR

Buttons
Clocks
Die Castings
Metal Beds
Refrigerators
Scales
Steel Cabinets
Toys
Washing Machines
Wood Handles

and a host of other products.

DURABLE

This synthetic resin finish dries to a film that is hard and tough approximating porcelain in its appearance.

ELASTIC

Syntol is extremely elastic, and adheres tenaciously to wood or metal and other non-porous surfaces.

HEAT RESISTANT

Withstands temperatures of 225° Fahrenheit and higher depending upon color. Darker colors stand higher heat.

COLOR RETENTION

Colors retain their shades with age and under heat.

Hilo Baking Syntol is the answer to present day finishing requirements—a superior finish in shorter production time.

Send for Bulletins illustrating and describing Hilo Baking Syntol or discuss your finishing problems with one of our trained representatives.

HILO VARNISH CORPORATION

"70 Years Experience"

42-60 Stewart Ave., Brooklyn, N. Y.

CHICAGO Boston Philadelphia

Bobbins" by J. E. Greene (see page 20). If you could advise where we could obtain this finish to test out we would be greatly obliged. — C. Mfg. Co.

Parchment Finish

A manufacturer of upholstered furniture desires information relative to a "parchment" finish and how it is produced. Can you enlighten him? —I. W. Co.

Burn-Proof Lacquer

In your January, 1934, issue of INDUSTRIAL FINISHING, on page 18 ("Review of Developments"), you mention a burn-proof lacquer. Will you kindly give us the names of the firms that make this material to be used on wood furniture?—T. Mfg. Co. (Furniture).

Rust-Proof Bake Finish For Cast Iron

We are interested in an enamel paint in various colors to be used on cast iron — something that can be baked at a low temperature and will be corrosion proof. If you can give us the name of a manufacturer who makes such a paint, it would be greatly appreciated.—D. Co. (Pumps, Boilers, Furnaces).

To Marbleize Wood

Could you furnish me with the name and address of some firm that manufactures a paint or plastic which can be applied to wood to make it look like marble when finished? We are very much interested in producing a marble effect on wood and thought that you could furnish us with the information desired.—W-G. P. Co.

Textile and Paper Lacquers

Your write-up about "Textile and Paper Lacquers" in the August issue of INDUSTRIAL FINISHING (page 45) was read by me in the nick of time. Will you oblige me with addresses of those manufacturers of same by return mail . . . or if you care to, write to them to send me data, or send samples as soon as possible.

The reason I would ask this of you is that I need this paper lacquer before I can exchange correspondence back and forth.—T. L.

Flame-Proof Finish

WIRE TODAY NAME OF MAKER OF FLAME PROOF FINISH PAGE SIX OCTOBER ISSUE INDUSTRIAL FINISHING.—S. B. C. Varnish Co.

Waxing O. K.; Thanks

We should be glad if you could thank the contributor who gave a reply printed in your September issue to our inquiry regarding wax finishing fir handles. We are very pleased to have had all the information which has been published in answer to our inquiry. — M. L. Co. (Handles, Dowels, Curtain Poles).

Bonderizing to Rust-Proof

Could you please send me information on "Bonderizing" metal to avoid rusting? Am in the enameling business and would like to add this work to my shop. Would appreciate information on how it is done and what materials are required to do it. Thank you for any information you can give me.—G. E.

EDITOR'S NOTE: An article on this subject appeared in November, 1933, INDUSTRIAL FINISHING, on page 26. Bonderite is a product of the Parker Rust-Proof Co.

Paint for Canvas

I have read one of your interesting magazines and notice that you invite questions in regard to paints and finishes. I have a problem of striping a large quantity of light-weight canvas duck with paint. I find that ordinary house paint soaks through the canvas and makes it stiff and hard. I need a paint that when applied to the canvas will be flexible, as fade-proof as possible, will not soak through the canvas, and will not be too expensive to apply.

I wonder if you would be kind enough to suggest how to mix such a paint.—K. W. K.

Flexible Lacquer for Fabrics

We note an inquiry under the title of "Flexible Lacquer for Fabrics," signed "D. Q. Co." (page 4) in the October, 1934, issue of INDUSTRIAL FINISHING, that relates to a product —unquestionably of our manufacture.

Electric insulator, as described on

(Continued on page 40)

ADVERTISING PAGES REMOVED

Finishing Products Made of — Steel, Wood and Die-Cast Alloy--

by Eugene Lewis*
Finishing Engineer

HERE IS AN interesting and unusual case where these three very different materials are used in the building of one article. Especially the painting program deserves attention.

Due to their divergent surface characteristics, it is common practice to use finishing methods for them (steel, wood and die-cast alloy) that are different, one from the other. But in this instance all three kinds of surface receive the same paint materials, the same number of coats, and in the same order. And the result is not only a physically successful finish but also an attractive effect. Best of all, from the viewpoint of economy, the program would be hard to beat.

The product to be painted is a small ironing machine of the home laundry type. The supporting frame-and-legs assembly is made of pieces of sheet steel of heavy gauge, pressed, formed and welded together. On this rests a horizontal panel of plywood, of which the top ply is gumwood.

*Knows finishing, especially coatings for metal; is "on the road"; has experience in manufacturing; and education in chemical engineering.

"This article describes and discusses the method used by a manufacturer to solve a paint-shop problem in an acceptable manner. I have tried to point out the difficulties encountered, the solution of the problem and the quality and economy of the resulting procedure. I hope that I have presented this in the way you like; your comments will be appreciated."—The Author.

▲ ▲ ▲ ▲

Above this wood panel or table top is the ironing roll, supported by a pedestal at the right hand side. This pedestal not only supports the roll but also contains the mechanism that turns it. The shell or covering case of this pedestal is a neatly rounded housing made of die-cast alloy.

When the ironer is not in use, there is a box-like cover which encloses everything above the table top.

When finished and ready for the dealer's showroom, the entire ironer appears in white—a beautiful snow-white all over. The following paint-shop procedure

shows how this is accomplished in a satisfactory way and at a minimum of cost.

Paint-Shop Procedure

The bare wood ply-panels, after being power sanded, are handtrucked to the assembly department, to be attached to the pressed-metal leg and frame assemblies. This department adjoins the paint-shop, to which these chasses are rolled on their own wheels. Here a coat of primer-undercoat is sprayed on; this goes onto the steel, the wood and the die-castings.

This undercoat is an oil-type material in which the oil-varnish vehicle, in kind and proportion, is such that it will not be lifted or wrinkled by the succeeding coats which are lacquer. The reason for using a first coater of this type is that, due to its high content of non-volatile, it gives a thick film which fills the grain of the wood, levels surface defects and produces a smooth job—with one application; and it serves equally well on the steel and die-cast parts.

While the chasses are being sprayed, the covers and the roll supports are getting the same undercoat in another booth. The color of this undercoat is a very light bluish gray. It costs somewhat less than pure white. And the slight difference in shade between this and the next coat makes it easier to get complete coverage, without skips or "holidays." Then, too, there is this apparent fact: white over blue-gray, in certain cases, looks whiter than white over white.

Next morning the undercoat, which has air-dried over-night, is given a light sanding by hand. Then all parts receive two coats of white, high-gloss lacquer, about two hours between coats.

With white finishes like this, the best job is the one that accomplishes the result with the fewest coats—not only for economy's sake but because every added coat builds toward a yellowish effect. Within certain limits, fewer coats look whiter.

In the afternoon of the same (second) day the final assembly is made. And a useful household machine is confidently exhibited to the critical eye of the housewife-buyer who, to a considerable degree, judges the quality which cannot be seen by that which is evident at the first glance—the excellence of the finish.

EDITOR'S NOTE: *After reading the original manuscript for this excellent article, the Editor suggested to the author that he might have gone into a little more detail. In reply the author wrote the following letter, which really explains why too much detail is often not only unnecessary but sometimes decidedly harmful.*

Off the Record

AUTHOR'S REPLY:

"I have been looking over my copy of the article I sent you, to see where I could embellish it. But "no see."

"Suppose that I went on to explain why, in selecting a "universal primer," the choice was not a toluol-reducing synthetic. Isn't it probable that there would bob up a covey of synthetic boosters, each one proclaiming that his kind of chemical finish forms a thick film, lies down smoothly without undulations, air-dries overnight to sand readily on wood, but on metal needs no sanding, does not get

seedy in the can if kept a few weeks before using, nor does the coat become brittle with age.

"Similarly, if I pointed out why we avoided a nitrocellulose first-coater, the lacquer boys would undoubtedly be heard from: high solids content; ability to stick to surfaces not chemically clean; flexibility, hardness and easy sanding; and ability to fill the wood smooth with one coat.

"Perhaps I could go deeper into the matter of the whiteness of whites—and have my ears knocked down! (Why don't you go after the experts on refrigerator whites and the wave-length explainers, to give us the whole story on this white question?) . . . "

Refinishing Metal Auto Wheels

IN A MODERNLY equipped refinishing shop I recently observed the procedure of removing the old finish from metal automobile wheels, and the cleaning of other metal surfaces by the sandblasting process. It was surprising how effectively a first class job was performed in such a very short time. This method is remarkably effective for removing either air-dried finishes or baked enamels, and it also takes off all grease, scale, sand and other foreign matter.

I believe that a shop doing any great amount of cleaning will find that the saving in labor and time will soon pay for a sandblasting outfit. The process is very simple and the equipment is easy to operate. It leaves the metal surface in ideal condition for the first coat of finishing material. Various sizes of sandblasting equipment are available for any regular or special work. Anyone interested in cleaning by this process should see the equipment in operation.—J. E. GREENE.

Standard Varnish Appointments in Industrial Division

Mr. Paul Sommer, Industrial Sales Manager of the Standard Varnish Works, at New York, announces the engagement of the following men recently connected with the Mountain Varnish Co., of Toledo, Ohio:

L. Martin Courtney, General Sales Manager.
Ralph W. Darner, Manager of Laboratories and Factory.
Paul Evans, Chief Chemist.
Omar McDaniels, Head of Varnish Experimental Dept.
James Mann, General Purchasing Agent.
Gordon Lennox, Sales Engineer.
B. C. MacDonald, Sales Representative.
Willard Boshart, Sales Assistant.

Mr. Courtney will act as Regional Industrial Sales Manager for Ohio and Michigan. Standard has opened a sales office and warehouse in Toledo, Ohio, and the Standard Varnish Works of Michigan now has offices in the General Motors Building at Detroit.

Mr. Ralph W. Darner has been placed in charge of Standard's Elm Park laboratory and factory. Mr. Darner held the chair of Industrial Chemistry and Research on Paints, Oils and Varnishes under Professor Ladd at the North Dakota Agricultural College for four years, was in charge of the factory and laboratories of the Truscon Co. of Detroit, Mich., for 11 years.

Calibrated Mixing Cups

"Duco" distributors are now offering to the trade a complete mixing set, known as du Pont Calibrated Mixing Cups. This consists of eight calibrated cups with dipper handles, ranging from $\frac{1}{4}$-oz. to 8-oz.; a paddle and a brush, all mounted on a convenient rack.

The du Pont Company supplies refinishers with Duco Tinting Colors so that they can make up their own tints to match the colors of any car, and the new mixing set is expected to make it easy for a refinisher to match quickly any desired color scheme.

Fine Finishes?

or What Ruined Some Expensive Furniture

by Garrett F. Huizenga

HAVING ACCOMPANIED a few of the prospective retail buyers of furniture, and also making an extensive study and search of the retail furniture market, I have come to the conclusion that a vast improvement is not only necessary, but that that much and oft-spoken-of something is lacking. That something called "It," although the term is wholly inadequate, also applies to our furniture of today and tomorrow—as well as to the motion-picture producers' successful screen players.

I will mention a few of the outstanding pieces of furniture which should have been exceptional in their line, only to be made to appear cheap, and suffering from a "that's good enough" complex.

I will cite a few instances which were particularly outstanding and may they be both instructive and corrective.

One interesting experience occurred when I appeared (unshaven and not too well dressed) at one of the largest retail furniture stores in a city of about 170,000 population. This store carried medium and high grade furniture, as well as many pieces of lower grade merchandise, which could not have been classed as furniture.

Oak Dining Room Suite

The first thing that happened, a high-pressure salesman turned the heat on me, as I was directed to their dining room suites. An oak suite in a light-shaded amber tone caused me to pause and ask questions. It was the latest thing, of course, and a bargain at $425 for eight pieces. Here we had a beautifully designed and very well constructed suite, but the finish had ruined it in its utter lack of accentuating the fine design. The base color, or I should say tone, was evidently a toner made from transparent colors in lacquer merely lying on top of the wood. This was gun-shaded with a brown shading stain, also a lacquer stain undoubtedly. The shading was heavy and had been piled on until a wavy effect was noticeable, caused by the high pressure on flooded parts.

Doors in the cabinet had been shaded while attached and closed, leaving a heavy line of shading color on the door stiles and pilasters. When I questioned the salesman, he insisted the color was

obtained by the filler only, which to my eyes was conspicuously lacking. I asked him, "Will the color in the shaded parts scratch off or mar?" I told him it looked as if it were merely a surface color and that a scratch would also remove some of the shading. He emphatically pronounced it a very good job and declared that I could not tell if it was a surface color or a stain applied directly on the wood. I opened the door of the buffet and showed him the lines caused by shading the doors while attached. He became indignant and insisted that I was looking for flaws. Who wouldn't? I was truly a prospective purchaser at the time, and the price was $425.

Walnut Radio Cabinet

A high-priced radio cabinet of good design and woods, but poorly finished could have been made a beautiful piece of furniture with a bit more care in the finishing department. Evidently the speed of production caused its cheap appearance. This cabinet was of combination walnut veneers and red gum construction. The gum wood parts were far from being matched in color to the walnut veneer parts. Oh, yes! an attempt had been made! It appeared as if a nearly opaque stain or thin enamel had been used. It was off-color and poorly applied.

On the veneer parts an attempt had been made to fill the pores of the wood. The doors evidently had been finished separately—being about a shade lighter in color—and in applying the lacquer, one coat had been spared by the application of a very heavy coat which did not flow out or level properly, giving them a pronounced orange-peel effect. What a beautiful job it could have been, with color matched solid and veneer parts . . . . with veneers filled properly and coated with a material that was correct in solvents to level just right. How much more would it have cost? Would it have had more sales appeal? Surely; you answer it.

Mahogany Furniture Samples

In one plant I recall, a set of samples were in the process of finishing. These were to go to a New York concern to be inspected, and as samples of the work to be judged in the selection of the concern to manufacture a $90,000 order of high grade chairs, desks, directors' tables and bookcases. All pieces were in solid mahogany and crotch mahogany, in a large matched top such as I had never before seen.

The finisher was asked to match a color block. His color was very near and, to match it, he spread a nice coat of colored shellac on those tops. Everything went fast and furious in the finishing department, as it usually does with any sample piece. It was very warm and these men brushed colored shellac onto a 12-ft. table top. The brush marks showed, being the length of the table top and the veneer was 4-piece matched. On this was "poured" a heavy coat of lacquer which accentuated each brush mark by dissolving some of alcohol-soluble colors and depositing them in tiny ribbons, thus somewhat classifying the weaker one and building up the heavier.

A more "killing" effect could not have been produced. A bit more time on the matching of the original stain would have pro-

duced a beautiful job. Naturally, the order was not placed with this concern. Undoubtedly that top was one of the contributing factors which influenced the order being placed elsewhere.

Lacquered Bedroom Suite

A beautiful bedroom suite of the better grade was brought to my attention and I was asked to find the cause of various little things going wrong. It was a $700 job, and the owner thought it should be about right at that price having been in the home about two years. Upon seeing the suite I could quickly lay my thoughts along the right path to the source of the trouble. I knew the finisher at this plant and the methods he used.

Let me explain the trouble first. The suite was finished in lacquer by a reputable material house. The finish was a clear lacquer rubbed to a fine surface. After a little use the dresser showed small white scratches and was easily marred; the accidental dropping of a comb would cause a white spot to appear. The edges of the foot-end of the bed began turning white and the lacquer flaked off. Small white spots on the head-end appeared where the small glass drop on the pull chain of the bed lamp dangled and struck it occasionally. Let's look into this:

The turning white and flaking of the lacquer can be traced to the use of water stains in this case. Water stains are among the best but must be used and handled with discretion. The flaking occurred on the end-woods only. In the desire for production speed, sufficient time was not allowed for the moisture to evaporate and for the parts stained to dry out to the original moisture content of the lumber, as it was when it left the drykilns. This moisture was sealed in by the lacquer coatings. This suite had been used in a second floor flat where a hot-air furnace furnished the heat and caused the moisture to seek an exit. Understand this end-wood absorbed considerably more moisture than did the veneer parts. The white spots caused by slight abrasions were traced to the finisher's desire to do an exceptional job in producing a well rubbed and smooth surface. These small "spots" were found not to be through the entire finish down to the wood but just a bit below the surface. This caused a little "headache," as lacquer coatings dry to a homogenious film. It was learned the finisher had oil rubbed the entire suite and then recoated it before the final rub job. The slight film of oil left on the surface before the final coat sure got in some dirty work.

These are a few of my findings. A volume could be written.

Methods and equipment cut a large figure in the production of quality merchandise. It is my intention to write something more in the near future. Ever hear or see men working in the finishing department wearing sheep-skin-lined coats during the cold spells for lack of heating equipment? Ever thaw out water stains frozen nearly solid in the morning before you could begin working? Ever see a spray gun throw a stream of oil and water when the fluid hose was shut off? I'll write about it later.

A tortoise shell finish for wood and metal novelties is one of the latest offerings.

Don't *Spend* your money

. . . . *Invest* it !

This is no time to waste dollars—or even pennies—on anything that does not contribute directly to the making of sales. It is no time to waste money on useless frills and furbelows.

By the same token, however, this is no time to practice false economy by destroying or hampering a product in any of its sales making functions. Finishing, for example, is something more than a commodity to be bought in the cheapest market. It is—or should be—a *working* part of the selling process . . . with the dual job of protecting and beautifying the product. And its cost or value can only be gauged by its relation to the profit of increased business.

Good finishing earns its salt by attracting buyers. The color is *right* . . . it *looks* like quality . . . it is pleasing in every respect. Good finishing *holds* customers, too, by keeping them satisfied with their purchase. It doesn't scratch, or mar, or wear easily . . . it doesn't peel off or fade. In other words, there is really no better place to put your dimes and dollars than into good finishing for your products.

Stop *spending* money for finishing—invest it for *results*.

EGYPTIAN · LACQUER

THE EGYPTIAN LACQUER MFG. CO. ● 90 WEST STREET, NEW YORK

Automatic Sprinkler Protection in Finishing

by Robert S. Moulton
Technical Secretary
Nat'l Fire Protection Ass'n

RELIABLE automatic fire protection equipment has become a necessity in plants doing industrial finishing in order that fires which occur may be automatically controlled with a minimum of interruption to production schedules and with as little loss as possible. Finishing room fires most frequently occur in connection with the use of flammable finishes by means of spray application, dip tanks and other processes, all of which involve definite fire hazards. Automatic sprinkler equipment, where properly installed and maintained —and supplemented where necessary by automatic foam protection and other specialized protective equipment—has proved to be the solution for the problem of controlling these fires.

Records of 146 Fires

The fire record files of the National Fire Protection Association contain numerous reports which testify to the effectiveness of automatic sprinkler protection in finishing room fires. The important part played by automatic sprinkler protection in finishing rooms is shown by a study of 146 recent fires in which flammable finishes were involved. In 118 out of 121 fires at which automatic sprinklers operated, the sprinklers either completely extinguished the fire or held it in check until other equipment could be used. The 25 fires in which automatic sprinklers did not operate were largely in unequipped factories or were trivial fires which were extinguished before sprinklers operated. Most of the fires in unsprinklered factories caused large

Mr. W. H. Rohr, Editor:

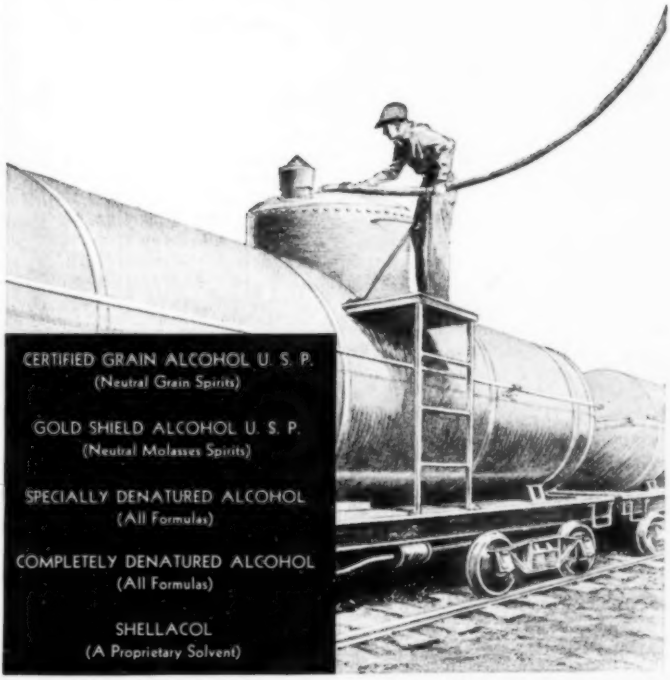
The National Automatic Sprinkler Association has referred to this office your letter of September 11 suggesting an article on Automatic Sprinkler Protection for Finishing Rooms. The National Automatic Sprinkler Association suggested that we prepare the article on the basis of our national statistics of automatic sprinkler performance. We have been glad to do so and are submitting a manuscript which we trust will be suitable for your purposes. This may be run as an unsigned article or credited to the undersigned as Technical Secretary of the National Fire Protection Association, whichever you prefer . . .

—THE AUTHOR

▼ ▼ ▼ ▼ ▼

ROSSVILLE ALCOHOL

THE SPIRIT OF THE NATION



CERTIFIED GRAIN ALCOHOL U. S. P.
(Neutral Grain Spirits)

GOLD SHIELD ALCOHOL U. S. P.
(Neutral Molasses Spirits)

SPECIALLY DENATURED ALCOHOL
(All Formulas)

COMPLETELY DENATURED ALCOHOL
(All Formulas)

SHELLACOL
(A Proprietary Solvent)

EXCEPTIONAL DISTRIBUTION FACILITIES

ROSSVILLE
THE SPIRIT OF THE NATION
ALCOHOL

COMMERCIAL SOLVENTS CORPORATION

DISTILLERS OF FINE ALCOHOL

TERRE HAUTE, IND.

BRANCH OFFICES AND WAREHOUSES IN ALL PRINCIPAL CITIES

losses, and in a number of cases destroyed the plant.

Examples of Sprinkler Operation

A typical example of effective operation of sprinklers in finishing departments occurred in a lacquer spray booth of an electrical appliance factory. Lacquer residue was ignited by the friction of a scraping knife used in cleaning the booth. One sprinkler operated and promptly extinguished the fire confining it entirely to one booth. In a very short time the finishing department was able to resume operation, whereas without automatic sprinkler protection, the residue in other booths would probably have ignited causing a serious fire.

The desirability of having complete sprinkler protection covering all points where fires are likely to occur has been proven by many fires, and in finishing plants spray booths and ducts should be specially protected. One fire illustrating this occurred in New York City this year. The fire started in a spray booth which was not sprinklered, and spread through an all-metal blower system. The blower system became red hot and fire spread to surrounding material.

Automatic sprinklers at the ceiling of the room operated, sent in an alarm, and held the fire in check until the fire department arrived. Due to the lack of sprinklers in the spray booth and blower system the fire had become so hot that two large hose streams were necessary to control it. Another fire occurred in a metal-working plant where complete sprinkler protection covered booths and ducts. This fire was due to ignition of residue in discharge pipes. Six sprinkler heads operated and gave an alarm. When firemen arrived the fire was practically out.

Automatic sprinkler protection is valuable not only as a fire extinguishing equipment but because sprinkler alarms frequently give the first notification of fires. Many finishing room fires occur at night . . . spontaneous ignition of finishing material residues, oily rags, and other causes. Sprinkler alarms, especially when connected to a central station, insure prompt discovery and control of fires.

The National Fire Protection Association's Committee on Manufacturing Hazards has given study to the problem of finishing department fires and has prepared detailed recommendations for fire prevention and fire extinguishing equipment. Pamphlets entitled Finishing Processes, Paint Spraying and Spray Booths, The Spray Application of Flammable Finishing Materials, First Aid Fire Appliances, and other helpful material may be obtained from the National Fire Protection Association, 60 Batterymarch St., Boston, Mass. For detailed engineering advice concerning the fire protection desirable for any specific plant, the insurance inspection department having jurisdiction should be consulted.

Pyroxylin Lacquer Book

An interesting and informative booklet of 44 pages, size 4x9-in. between heavy covers, and published by The Zapon Co., Stamford, Conn., reveals a great deal of information on the nature and practical uses of pyroxylin lacquers for finishing metal, wood, composition, glass and various types of surfaces. It lists a complete line of finishing materials and tells how to use them effectively and economically.

NEW

Binks TOUCH-UP GUN!

THOR
MODEL 5

- Spray width varied by thumb of hand holding gun.
- Overhead trigger formed to fit finger — more comfortable — closer control.
- Head does not obstruct view—built for finer work.
- As simple to use as pointing your finger.
- Body and air nozzle drop forged bronze.
- Fluid nozzle and needle valve steel, hardened and ground.

Our 40 years experience in successfully building spraying devices has been used to work out ideas we have received from finishing superintendents in producing this gun.

It has all the advanced features users have indicated that they need.

SOLVES TOUCH-UP PROBLEMS THE WAY YOU HAVE HOPED THEY WOULD BE SOLVED » » »

Binks SPRAY SYSTEMS

BINKS MANUFACTURING COMPANY
3114 CARROLL AVENUE - - CHICAGO

The Romantic Road of Industrial Finishes—III

by R. J. Fairburn
Zapon-Brevolite Lacquer Co.

Here the author lists and describes several of the white and black pigments used to give color and opacity to lacquer enamels and paints.

★ ★ ★

WHITE LEAD is the most used pigment in the lacquer and paint industry. Some house paints contain nothing but white lead in linseed oil, with a drying agent. Of course, an up-to-date house paint is not quite so simple as this. White lead, or basic carbonate white lead, is prepared from the mineral. It comes to the paint industry in the form of white powder. Lead mines are found in Wisconsin, Missouri and various other parts of the country. Lead is also often encountered in the mining of other minerals.

Zinc Oxide

Zinc oxide is one of the whitest of pigments. It is much more nearly white than white lead. It is made from zinc ore which is found in most places where lead is found. In many places it is necessary to separate the lead and zinc before either can be used.

An interesting story is told of the discovery of some very rich zinc and lead ore in Wisconsin. A Scotch miner by the name of Duncan was driving an ox team through the country. There were no roads and it was necessary to haul the supply-laden cart across country, choosing the paths of least resistance. On attempting to climb up a steep hill, one of the shod oxen slipped and fell. His metal shoe uncovered a chunk of nearly pure lead. Duncan, with his associates, began mining activities at this spot and took out very rich deposits of lead.

This was at the start of the Civil War. Naturally, lead was very much in demand for ammunition. Consequently the lead was rushed to market as quickly as possible and a very rich vein of zinc was left in the ore dumps; it did not command a sufficiently high price to be worth taking out. Some years later, when the zinc market was more favorable, these mines were reworked and the heavy greenish zinc ore was removed. It was used in making sheet zinc, etc. Still later a market was developed for zinc oxide for use in paints. So great was the demand that the market price of the ore reached $50 a ton. These same mines were again re-

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Rockford Varnish Co.

ROCKFORD, ILLINOIS

worked and the "dry bone" removed. This is the ore which is used for making pigment. It gets its name from the fact that it resembles pieces of dry bone.

Lithopone; Whiting

Lithopone is a white pigment much used because of its good hiding power. It also is very white. It is a mixture of zinc sulphide and barium sulphate, the latter being blanc fixe, or barytes, a rock like mineral found in Missouri, Arkansas, Tennessee, North Carolina and Virginia. With exception of the Allegheny deposits, the removal of barytes is not a regular mining industry. The Missouri farmer uses it as a sort of off-season crop, hauling a load to market whenever he has nothing else to do, or when he needs a little extra cash.

Whiting is a white pigment used as an extender and wherever a more costly white is not required. It is finely ground calcium carbonate or limestone. Its main source is the chalk cliffs near Dover, England.

Silica; Talc; Asbestine; Blacks

Silica is a white pigment derived from quartz. Silex is another white pigment, derived from flint. These two inert pigments are useful in paste wood fillers and are also used in paints to give them good "tooth," or adhesion. Talc is a white pigment derived from soap stone. It is used in paint, chiefly to prevent hard settling of other pigments.

Asbestine is an inert white pigment that is a by-product of asbestos mining. It comes from Canada. Its main use in paint is as a reinforcer or binder. Its particles are elongated, rather than granular and it reinforces the pigment structure in much the same way as hair is used to strengthen plaster.

Lamp black, one of the pigments most commonly used in black paint, is the soot that is produced by burning oil and other greasy substances with an insufficient supply of air. Carbon black, the other more popular black, is produced by burning natural gas. Drop black, or bone black, is a very deep black and is made from calcined animal bones. It does not equal either of the other two black pigments in hiding power. These pigments are all produced in the U. S. A.

Graphite is a black pigment used mostly in rust inhibiting paints for exposed metal surfaces. It is also found in the form of lead for pencils, as stove polish, etc. It is sometimes produced from coke and is also found in natural deposits, such as those in Ceylon.

Colored pigments may be divided into several classes. Natural pigments are those found in nature, such as earth, hematites, etc. Lake colors are made by using some inorganic material, such as blanc fixe, and combining it with an organic (taken from animal or plant life) dye. A toner is an organic pigment which does not have an inorganic carrying base.

Part IV of this series, which will appear next month or later, continues with more information about colored pigments — reds, blues, yellows, browns and metallic bronzes—which are employed to give color and opacity to lacquer enamels and paints.

Metal Finishing—One Coat

I HAVE OBSERVED and successfully demonstrated one-coat finishes on the following: Portable machines for sanding and polishing floors, sheet-metal and cast-iron parts for range oil-burners, and sheet-metal cabinets for household oil burning furnaces. These products were finished in colored enamels.

All sheet-metal parts should be thoroughly cleaned with a reliable cleaning solution, or given a light sandblasting; all cast-iron parts should be sandblasted.

For the sanding and polishing machines and range oil-burner parts, the baking type of lacquer enamel was used; the finish was sprayed on and then baked at a temperature of 200°F. for ½ hour. Characteristics of the finish: Good adhesion, tough and flexible, stands up well under severe abuse, excellent appearance.

Sheet-metal cabinets for furnaces were finished with a heat-resisting enamel, one coat being sprayed on and then baked at a temperature of 250°F. for one hour. Results: Very satisfactory, good adhesion, tough and flexible, resisted some bending without breaking the film.—J. E. GREENE.

Sam Moore Returns to Arco

Simultaneously with the news of his acquiring a substantial interest in the firm, The Arco Co. of Cleveland announces the return on November first of Mr. Sam Moore after an absence of two years. Mr. Moore will assume the important positions of Vice President and Assistant to the President.

During the 12 years that Mr. Moore was associated with the Arco Co. he made many friends among industrial paint users, particularly in the Motor Bus Transportation and motor accessory manufacturing fields.

When interviewed on his new connection, Mr. Moore stated that he was looking forward with a great deal of pleasure to assuming his duties which would permit of his spending a good share of his time in contacting those industries to which he had devoted so much of his efforts in the past and in which he enjoys such a wide acquaintance and friendship.

Complete Equipment Catalog Offered by DeVilbiss

The DeVilbiss Co., Toledo, Ohio, announces the release of a new catalog containing 32 pages inside heavy covers 8½ x 10¾-in. This catalog, known as the "DC" covers, in condensed form, complete spray-painting equipment for industrial and maintenance painting, interior decorating and automobile refinishing. It also includes the Company's line of automotive service equipment, hose, hose connections and many DeVilbiss Specialties of interest.

Improved Lighting Reduces Number of Accidents

Inadequate lighting is responsible for many accidents. Judging by the great reductions in accidents made in many industrial plants through the adoption of better lighting, it is safe to assume that a similar improvement awaits us in other industrial establishments.

When BRIGHT LIGHT stumbles in SHADOW!

LIGHT, speeding through space with incredible rapidity, fills the world with its radiance and furnishes the power that turns the wheels of life.

And yet this pure Light, streaming through open windows, often falls upon dark walls and dirt-covered ceilings. Then it stumbles, loses its radiance, and casts gloomy shadows that hamper production.

When Light fails, plant owners fall prey to costly penalties. Poor vision decreases morale, increases accidents, lowers production.

Today, factory owners need not suffer the penalties imposed by failing light. Du Pont chemists have developed a whiter finish for mill interiors. It is DULUX MILL WHITE. It stays whiter . . . resists yellowing . . . sheds dust.

This service to industry is only one of many in du Pont history. In their efforts to obtain more lasting, more economical, more beautiful finishes, du Pont chemists have been responsible for many of the major developments in finishes in the past ten years.

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For every industrial purpose there is sure to be a du Pont finish. Use one or several of them in your own plant to add to the value and salability of your products and protect equipment against deterioration and loss. E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Delaware.

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How to Test and Buy Wood Lacquer Sealers—II

by P. H. Faucett
Consulting Chemist
Los Angeles, Calif.

Editor's Note—In the first part of this article (October issue, pages 12, 13, 14) there appears a list of 28 comparative tests, and four illustrations, some of which are referred to in this final installment of an interesting and informative article.

THE POURING test on wood (D)* is made by pouring in the same manner (as for metal) across both sides of 2x6-in. gum wood panels which have been properly filled with a good wood filler. When dry, the lacquers will show the relative loss by absorption (14), and the touch of the fingers will reveal any grain raising (15), if present. After several hours, sanding ten even strokes with small pieces of 3/0 sandpaper will reveal the relative ease of sanding (16). The interval elapsing between time of application and point at which sanding can be done without "gumming" the 3/0 sandpaper is the "sanding time."

Roughly pulling the handle of a knife across the lacquered surface will show relative mar resistance (17), and finally waxing the surface with an ordinary wax will reveal the lacquer's resistance against turning white under the influence of wax solvents or waxes (18). By pouring several coats of lacquer on the wood and allowing each one an hour or two to dry, one will gain a relative idea of the number of applications necessary to produce a substantial finish (19)—whether it be several coats of sealer or sealer followed by other lacquers. Ease of handling with brush (20) or spray gun (21) is discovered, of course, by trying the diluted lacquers thinned to the same viscosity. The loss by evaporation (22) will be roughly inversely proportional to the "tack free" time.

The suitability of the sealer as a finish coat (23) is judged by its flexibility, appearance, etc., as brought out by all the tests.

The resistance to change on the shelf (24) is determined quickly by painting sealed samples flat black and placing them in the hot sun, or in an oven at about 100° to 110°F.

The moisture proofness (25) may be judged by placing the wood panels, which were previously coated over with one coat of sealer, in a closed container above a quantity of water heated

*See pages 13 and 14, Oct. issue.

to 150°F. or so. If weighed after 24 or 48 hours, the relative moisture proofness will be indicated by the gain in weight.

The ease of removal (26) is judged by simultaneously testing a spot on each metal panel.

Coverage of Lacquers

The coverage or "mileage" of lacquers (27) used on metal is quite simple; but on wood the variability of the wood and the absorption of the wood makes it more of a complicated matter. Everything else being the same, the coverage would be directly proportional to the percent by volume of non-volatile materials, and roughly proportional to the percent by weight of non-volatile material. Since we are thinning our sealers to the same spraying viscosities, this factor will not have to be considered. Suffice it to say that the higher the viscosity the greater will be the saving by lack of absorption into the wood. If the viscosity we do have is produced by high-viscosity nitrocellulose, by heat treated or blown oils, by highly polymerized resins or any other "false bodying" agent, the tendency to soak away is not accomplished nearly so well as when it is obtained by the use of increased amounts of low-viscosity non-volatile materials.

The non-volatile materials should also be those that do not have an affinity for wood such as some of the oily penetrating plasticizers. The gums and nitrocellulose are better in this respect, although large amounts of blown oils work quite well.

The tendency of oils to soak away is compensated for a great deal by their greater volume per pound, as compared to gums and especially to nitrocellulose. For example 8-lbs. of castor oil will give the same volume of film-forming material as 14.2-lb. of dry nitrocellulose or 20.3-lb. of the conventional wet nitrocellulose.

Speed of Drying

The speed of the initial and final drying of the sealer film is perhaps the most important factor in saving material, and is governed by the volatility and kind of the solvents in the lacquer and thinner, as well as by the solvent retention of the non-volatile materials. The "tack free" time test is essential in judging this factor. Therefore from the percent of non-volatile test and "tack free" time at the same viscosity or spreading consistency, we are able to gain a rough idea of the relative coverage of two lacquers. The application of one coat to wood by pouring will reveal more information concerning "mileage," and will reveal the soaking away due to thinner and solvent arrangement also.

The Item of Cost

Finally but very important is the item of cost. Cost takes in many of the foregoing factors, such as number of applications, the thinner used, sanding required, ease of handling without danger of marring or scratching during schedules before and during shipment. Then there is the factor of ease of spraying without too much dust, clean up work, etc., which will help one to determine which of two lacquers is the cheapest.

If we are to consider cost in the light of repeat orders, and volume of business, then the factors such

as durability, flexibility, mar proofness, alcohol and water and moisture proofness, as well as freedom from turning white under wax, beauty, resistance against yellowing in sunlight, etc., enter vitally into the buyer's decision.

Finishing Lawn Mowers

SEVERAL combinations of color schemes are used in the finishing and decorating of lawn mowers—the popular colors being black, red, green, blue and aluminum. Methods of application include both dipping and spraying.

Castings and other metal parts should be thoroughly cleaned to make the surfaces free from sand, grease and other foreign matter.

The finishing materials used should be of good quality as to adhesion, coverage, elasticity, water-and-weather resistant, and with high gloss. I find several different classes of materials are used, namely: paste colors in oil, overnight air-drying enamels, and synthetic air-drying enamels.

The paste colors are mixed with a good grade of fast-drying mixing varnish and thinned with turpentine or benzine for spraying or dipping. One coat is generally sufficient for the base color coat. This coat is thoroughly dried either by overnight drying or it can be oven-dried for two hours at a temperature of 185° to 200° F., depending upon the color. For the final finish a coat of waterproof varnish is applied.

With the overnight air-drying enamels and synthetic enamels, one coat is applied. No finish varnish is required, as these two products are of a high-gloss type.

For the aluminum finished parts, the aluminum bronze powder is mixed with a high-grade, exterior-type, bronze liquid. The wooden handles are dip-finished in a waterproof handle varnish.

The color schemes and finish in general are very attractive, having good wearing qualities and withstanding a reasonable amount of general abuse.—J. E. GREENE.

Hercules New Plant to Produce "Tornesit"

Officials of Hercules Powder Co. announce that work will begin shortly on a new plant at Parlin, N. J., for the manufacture of "Tornesit," the company's new protective coating material.

With the opening of this plant Tornesit will be produced in this country for the first time, replacing the material now being imported from Germany.

Tornesit is a chlorinated rubber product that is rapidly finding use in the protective-coating industry because of its great resistance to acids, alkalies, fumes, and other destructive elements. Tornesit is also being used for adhesives and plastics and as an impregnating material for textiles and paper.

With the construction of a plant in this country it is believed that this new product will find an even wider use in the industrial field.

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..Says J. S. Sprott,
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●

While Commercial Solvents Corporation does not manufacture lacquer, it supplies the coatings industry with important materials—Butanol and Butyl Acetate C. S. C.—which are determining factors in lacquer quality.

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Questions « Answers

Bone White Finish

Can you tell me something about the Bone White finish we hear so much about lately—how it is produced as to materials and finishing schedule.—A. O.

The following is a detailed description of "Bone White," "Old Bone," "Egyptian White," "Dirty White." Many names are used for this particular finish.

There are many people who do not understand or know what the true Bone White finish is. For instance, I have seen this finish produced on some lines of furniture, using the old ivory enamel color that was used many years back. This is not what is desired as Bone White. Old Bone is the proper color and is an old grayish cast—dirty and worn looking.

The Ivory Bone, referred to above as being the wrong color, is well explained in a few words. A soup bone after it has been boiled and taken from the broth has this color. Right at this time I am putting out a dozen suites or more for various firms through this section (High Point, N. C.) and I carry both types of bone right along with me to put over this idea.

So much for the description. Now for an actual experience and the original producing of the so-called Old Bone finish. This is a personal experience of mine while connected with one of the largest furniture factories in the country—a leader in producing finishes that all firms followed and used as a standard for their lines. Here's the picture:

The suite has been delivered to the finishing department—a dining room suite well designed and the cabinet workmanship right up to the standard. Enters the president of the firm—a man who has always had a hobby of following colors, finishes, and a man hard to beat on original ideas. In order to put his idea over to me to have me work out just the proper effect for him, he tells me to get a good warm brown transparent color to be used as the predominating base color. We are held up, due to the proper decoration to be used for this finish. The following morning, the producer enters and tells me of how he had a dream that night; he dreamed that he had slept in a gravel pit, his body partially covered with gravel and dust. Awakening, he pulled his arm from under the dirt and found that he had an old bone in his hand. He studied it closely and could see or visualize just where he could place this nicely with the brown that he had told me to get for him. It was weather beaten and had age, from years of laying there subject to the weather. It had small holes worn in it due to the rain beating on it.

This dream furnished the idea that I had to follow and nothing would do but get a bone that had been subject to the same treatment, and apply it on the suite. It was a success and the suite went over big for two seasons; then it died out as have many other finishes, but it will probably return some time—used in anoth-

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er way. This will explain as to the origination of bone white—or one bone white.

The designs on which it is used include modern classic in dining room, living room and bedroom lines; also the Early American Period.

WOODS USED: Veneered surfaces in mahogany, walnut, maple (both soft and hard), gum, birch, tupelo and even poplar; also solid woods of the same classes. To be able to produce the small holes as explained above in the bone, and where the manufacturer wants to carry out the effect, it is better to use open-pore woods such as mahogany or walnut. Do not fill these but let the pores take care of themselves as per explanation in detailed operations to follow.

The finish in detail, the operations, the materials and a few pointers follow:

1) Spray on a wet coat of lacquer sealer, cut 50/50 with lacquer reducer. Let dry two hours.

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2) Sand smoothly with No. 6/0 finishing sandpaper.

3) Spray on a wet coat of lacquer white decorator, cut 50/50 with lacquer reducer. Let dry two hours.

4) Spray on another coat of same as above. Let dry over night.

5) Spray on a wet coat of bleaching lacquer. Let dry three hours. This coat of material has a tendency to give a grayish effect which is needed in this finish. Do all decorating before this operation has been applied. It will protect the decoration. Glazing is the next operation, and without this operation would give a very messy job due to the glaze biting into the white coat.

6) Brush on a wiping glaze, cut 50% (100/50) with gasoline, and wipe to desired effect with soft cloths, and then brush with a badger-hair brush.

7) Spray on a wet coat of water white flat lacquer. Let dry for three hours. This material does not carry any color. Most coaters do carry a slight coloration of amber but this is not wanted on this particular finish, as it will give finish a greenish cast.

8) Steelwool with No. 3/0 steelwool. This will not scratch or show marks.

9) Wax with French polishing wax.

Hoping this may be along the lines that you want, and when I have more time I will write you on other topics that may be of interest.

AUTHOR'S NOTE: The materials referred to are of a certain make and carry identification numbers . . . which will be furnished to those interested. Write me care of this publication.—F. W. Worth.

Gasoline Pumps

IN THE manufacture of metal gasoline pumps and tanks for filling stations, it is customary to assemble the shell of the pump before proceeding with the finishing. After assembly the outer surface is thoroughly cleaned to make it free of dirt, grease and other foreign matter. In some cases, especially in large plants, the sections are dipped in a large tank of cleaning solution before assembling. Several cleaning solutions are available for this work but the one I have found in common use for this purpose is high-test gasoline.

The pumps and tanks are now ready for a spray coat of primer—a primer that will positively adhere to the steel surfaces. This may be a baking type of primer or an air-drying oil-base primer; colors generally used are red oxide or a light gray. The primer is applied as soon as the pumps and tanks have been assembled and properly cleaned—this to prevent rusting, as they usually set around until orders are received for the special or regular bright colors demanded by the different oil companies. The primer coat is then lightly sanded to a smooth surface and thoroughly cleaned. One or more coats of gasoline-resisting enamel are applied. This enamel must be high gloss, weather resisting, and it must be able to withstand the hard abuse to which these products are subjected. Colors must be as permanent and fast to light as it is possible to make them.—J. E. GREENE.

Costly Accident Insurance; Poor Lighting

Employers in the entire nation paid a total of $550,000,000 for all occupational accidents in 1933, of which $420,000,000 represented wage losses, $40,000,000 the medical expenses, and $90,000,000 the insurance costs. About $200,000,000 of this total sum could have been saved through the use of correct lighting. . . . For every dollar paid out by insurance companies in compensation claims for occupational accidents, the employer must pay four dollars for hidden or indirect costs!

J. E. Staud Died October 18

A letter from the Pittsburgh Paint & Varnish Production Club, Pittsburgh, Pa., announces the death of one of its most prominent members, Mr. J. Edward Staud—born in 1882 and died October 18, 1934. He was with W. W. Lawrence of Pittsburgh for 27 years. When the Pittsburgh Paint & Varnish Production Club was organized in 1927 Mr. Staud attended the original meeting, was elected temporary chairman and at the next meeting was installed as first president of the organization. Mr. Staud was always one of the most prominent members of the club and he served continuously on all committees at one time or another, particularly the Technical Committee of which he was chairman for the last two years.

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Binks Water Wash Spray Booths

THE PROBLEM of removing fumes from spray booth air by washing is accomplished by simple and effective system just announced by Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill.

The front part of the booth where the spray finishing operations are performed, meets all the requirements

The water-wash chamber of new Binks spray booth.

of good engineering practice; also the requirements of the National Board of Fire Underwriters, the Underwriter's Laboratory and Health Authorities. The conventional Binks distributing plates provide a uniform suction of air from all parts of the booth with a minimum exhausting power required.

The illustration shows a close-up of a water wash chamber with one side removed. This section is directly behind the distributing plates. The water spray nozzles used are the Binks patented non-clogging Rotojet nozzles developed for spray cooling towers. They accomplish the complete break-up of the water by means of an involute whirl chamber and without any slotted discs or moving parts and require only low water pressure for their operation . . . increased efficiency and . . . a smaller pumping unit which consumes less power.

The air, heavy with spray fumes, after passing beyond the distributing plates, shown at the left in the illustration, is drawn downward where an intense spray of water from the first manifold washes it. The air continues downward until it is past this first manifold; then it is carried upward where another spray from the Rotojet nozzles on the second manifold further cleanses it.

Before the clean air is taken out of the duct, wherein is located the fan that provides the exhaust suction for the entire booth, it is passed through the eliminator plates near the top of the booth. These eliminator plates separate the moisture from the air and reduce the amount of water lost through evaporation. The clean-out chamber as well as the manifolds, eliminator plates and float-switch are all of marked accessibility.

What's New « «

Uniforming Stain

A REMARKABLE uniforming stain for staining the light sapwood (particularly in walnut) to match the rich dark wood is announced by The Liquafill Mfg. Co., Dayton, Ohio. It is called "Hue-Na-Tone No. 16." Quoting from the company's literature:

"A variety of shades can be produced by diluting Hue-Na-Tone No. 16 to any desired strength with cold water . . . . is applied to the

sanded surface with a brush or spray; can be used directly as shipped, or it may be diluted with cold water to any desired shade for matching.

"Nearly all veneers are improved in color tone by Hue-Na-Tone No. 16 diluted with water. It weatherproofs wood surfaces and does not raise the grain of the wood to any great extent . . . . will not change color under lacquer and does not fade."

Goggles for Safety

IN MANY industrial occupations eye accidents or eye injury to workmen can be prevented by providing the men with suitable safety goggles. The pair illustrated in the accompanying cut is a newly developed

They afford maximum eye safety.

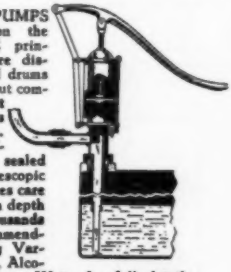
and patented goggle offered by the Chicago Eye Shield Co., 2300 Warren Blvd., Chicago, Ill.; it is known as "Style No. 527 Trojan Goggle." Features include maximum ventilation; molded bakelite eye cups; removable and interchangeable lenses; wide range vision in all directions; adjustable elastic headbands; comfortable fit to the face; etc.

Tests Spreading Capacity of Paints

AN UNUSUAL use for its manometers is reported by The Meriam Co., 1955 W. 112th St., Cleveland, Ohio, in connection with a new device designed by The Glidden Co. The equipment, which may be made portable, enables the "body" or viscosity of such materials to be deter-

For Transfer of Liquids . . . . Use the Air-Way Pump

AIR-WAY PUMPS are designed on the AIR-PRESSURE principle. Liquids are dispensed from steel drums and barrels without coming in contact with working parts of the pump. BUNG ADAPTER holds pump sealed to barrel. The telescopic extension pipe takes care of the variation in depth of barrels. Thousands are in use. Recommended for dispensing Varnish, Linseed Oil, Alcohol, Turpentine, etc. Write for full details.



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mined without the need for more than a very small test quantity.

Small vials or test tubes of the materials are first placed in a pump-circulated oil bath till they attain a predetermined temperature. Each in turn is then connected to a standard capillary suction tube, which is maintained at a constant degree of vacuum by means of the manometer already mentioned—this type of instrument being chosen mainly because of its ruggedness and permanent accuracy under practical working conditions. As the paint or varnish is drawn up the tube, a careful note is taken of the time required for the head of the column to pass from one scale mark to another about 6-in. along the tube. This affords a measure of the viscosity, which in turn indicates the "spreading capacity." Three standard capillary tubes are provided so that materials of widely differing viscosities, such as paints and lacquers, may be readily tested. The Glidden Co. states that it has two of these devices, one at its Nubian plant at Chicago and the other at the Cleveland plant. It is also stated that the new method of testing "body" is not only quicker but more accurate.

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A NEW FLEXIBLE aluminum paint, which gives a scale-like metal sheathing for longer protection plus a smooth, brilliant finish, has recently been perfected by the Roxalin Flexible Lacquer Co., 300 Magnolia Ave., Elizabeth, N. J.

Dirt and dust do not attach themselves readily to the surface. Because of excellent water-resistant qualities (including salt water) it stands washing beautifully. It also displays great resistance to chemical fumes, humid atmospheres, corrosion, rust and decay.

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222 East Ohio Street Indianapolis, Indiana

Waste Spray Collection

by M. M. Miller

"Waste spray from our spray booth exhausts spread out over the residential neighborhood and we were threatened with damage suits. After considerable experimenting we finally found a satisfactory and inexpensive remedy."

M. M. Miller

WHEN WE laid out our finishing department, we gave careful thought to the elimination of spray vapor. Our plant, being located in the residential section, we located the exhaust duct on the top floor over a vacant yard and we saw that there was a specially cleared space around to avoid any trouble.

Operations were started during the winter months, with lacquer enamel being sprayed. We got along splendidly until the return of spring of the next year, and a change was made to synthetic enamel. Even then for about two months we had no trouble, but with the first spell of warm weather there was unleashed a series of complaints and threatened lawsuits that almost made our hair turn gray. It seemed that the lacquer dust being dry, was quickly dissipated, whereas the synthetic enamel did not dry for hours and, being heavier, it settled and stuck. Also, during the winter months, neighbors had kept their windows closed; in summer months, windows were opened and enamel waste would spread for a radius of almost a city block, and would settle on their furniture.

Remedies That Didn't Work

Immediately some remedy became necessary. First we tried putting steelwool into the exhaust duct to catch some of the waste spray. We figured we could do this and then remove the steelwool daily and burn it off in our furnace and use it over again. This did not work out, due to the exhaust duct becoming choked in a very short time.

Another remedy suggested was to have a much larger windbreak on the outside of our duct and keep this wind-break well oiled. This also did not work out.

A third suggestion was to use reduced fan velocities, but this only caused our booth to clog up quickly.

A Successful Remedy

Finally we decided to apply some sound common sense with a little engineering. We moved the spray booth forward, away from the wall, a distance of 3-ft. In this space we placed an exhaust duct 4-ft. wide by 3-ft. deep into

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which the fans exhausted spray booth waste.

The velocity coming out of the spray duct into this new settling duct was decreased five times, thus allowing most of the paint particles to settle to the floor. The settling duct was then carried through the roof and bent over in a goose neck from which the air was allowed to impinge in an open pan of water, thus further catching any particles that were contained in the air. Any remaining particles that escaped with the air were very fine and, being carried to the extreme top of the building, they were readily dissipated over the roof and caused no further trouble.

Our main concern when we made this layout was that there would be too much static pressure for our propeller-type fans in the booth to overcome, but we did not find such to be the case.

We are maintaining a velocity of over 150-ft. per minute at the face of the booth and, due to more ease in cleaning the exhaust duct, this face velocity is even greater than it was previously.

Several of the paint companies were called in but none of their suggestions proved as efficient or as economical as the one we made ourselves.

Finishing Room Fires—IV

I HAVE SEEN several bad fires, but one of the worst was in a factory where I worked. It occurred at night. I wish everyone could look in on a scene of this kind; I believe it would do more good than all the articles that could be written.

The fire started in the buffing-

polishing room which was separated from the enameling department by a light wood and glass partition. The supposition is that it started by spontaneous combustion in a pile of sweepings consisting of threads and dust from the polishing wheels and other dirt that accumulates in such a place. This dirt should have been removed from the room before quitting time—or it could have been placed in a metal container and covered with water, or the container could have been covered with a tight lid.

I had enameled work hanging in the oven which had not been baked; more was hanging on the dip racks, and several large cases of raw work were in the room. Luckily there was no lacquer or thinner there—only enamels and japan.

You should have seen that place after the firemen left. The floor was burned through, leaving the upper half of the oven in my department and the lower half hanging down into the woodworking shop below. Firemen opened an oven containing about 400 pieces of freshly japanned work and shot a stream of water into it. Enamel cans were blown to the other end of the room, about 60 or 75-ft. away, where they struck a brick wall, burst open and started to burn. Freshly dipped pieces were knocked off the dip rack and bent out of shape. Wooden pulleys in the buffing room, belts, etc., were burned. Water leaked down into the woodworking shop, causing much damage. Several thousand dollars' worth of damage was done in a few minutes.

If there had been a fireproof partition between the buffing room

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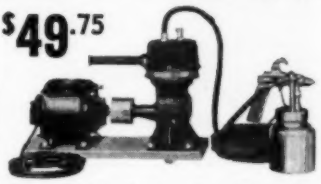

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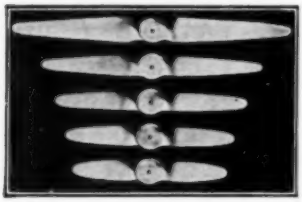

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and the enameling room, the latter department might have gone untouched. If the pile of sweepings had been put into a safety can or taken to the engine room to be thrown in the furnace, the fire probably would never have started. There were fire extinguishers installed in the plant, but as I said before, the fire occurred at night.

From my experience the biggest danger is spontaneous combustion which usually happens when no one is around and gets a fire well started before being discovered. My advice is to first look after whatever it takes to prevent a fire; for example, provide modern facilities for cleaning up and disposing of combustible material, and then enforce strict rules for a thorough cleaning and disposal of the refuse every day before workmen leave the department. Second, provide whatever is recommended for putting out a fire if one does get started; for example, automatic sprinklers, a dependable watchman if possible, fire walls and doors for rooms containing extra hazardous materials and operations, and hand fire extinguisher equipment.—F. M.

Letters from I. F. Readers

(Continued from page 7)

page 21 of our booklet, is a type of lacquer originated by this company years ago for the manufacture of radio wire insulation, known as "spaghetti" tubing. Since its inception, however, it has found application in a greatly varied field—whenever a permanently flexible, heavy, tough, clear coating is desired. It is widely used in the silk screen process trade, particularly textile printers in this area; as well as for production of "fish-skin" flowers, etc. —U. A. Co. (Pyroxylin Products).

Cushman Maple Finish

It would be very much appreciated if you could advise us the name of the "D. Furn. Co.," mentioned on page 30 of October issue, this concern being interested in the maple finish such as is produced by the H. T. Cushman Mfg. Co. of North Bennington, Vt. — O. Q. H. Co. (Paints & Varnishes).

Finishing Masonite Tops

We refer to your September issue, page 4, on which a note is printed relative to Masonite tops. Please advise the C. O. I. Co. that we too would be interested in learning of their Masonite finishing material.—D. C. & Co. (Woodwork).

"High Solid" Synthetic

In the September issue of INDUSTRIAL FINISHING, the article on "A High-Solid Synthetic Surfacer for Metal" is of great interest and I would be glad to know if you could furnish the name and address of the manufacturer of the product.—M. O. V. (Wood and Metal Patterns).

In your September issue of INDUSTRIAL FINISHING, on page 16, your article by K. N. Kathju refers to a "high-solid" surfacer. Will you give us the names of manufacturers of this product? We enjoy your booklet; it is very interesting.—N. T. Co. (Metal Screens, Shutters, Weather Strips).

Can you advise us who makes the "High-Solid Synthetic Surfacer" mentioned on page 16 in your September issue of INDUSTRIAL FINISHING?—T. C. Mfg. Co.

Who Makes Reno Wax?

One of our members is interested in locating the manufacturer of a dark wax for oak woodwork, which is put out under the trade name, "Reno." Have you any information covering this product? If not, can you suggest where we can obtain it? —O. B. Q. B.

What's Latest in Browns?

From time to time we have received some helpful information through copies of INDUSTRIAL FINISHING which come to our St. Louis branch. Just now we want to know what's new in "browns" for finishing . . . our product for 1935 and 1936. If you can furnish this information,

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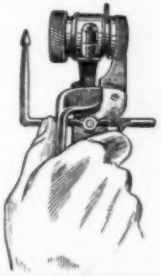

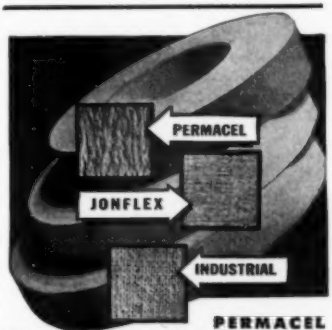

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we will be pleased to receive it. Do you have the standard portfolios for new shades for the coming season, and do you supply these standards? If so, kindly send one to my attention, C. O. D., or have one sent to us.—I. & Co. (Sheet Metal Products).

Lacquer for Leather

On page 6 of the October INDUSTRIAL FINISHING, we notice "Gravarco Flexible Lacquer" mentioned as a suitable lacquer for leather. We are interested in this as applied to white, black and brown material and would appreciate if you could give us the name of the manufacturer who makes it. Please address your communication attention of body plant. —T. N. Co. (Motor Trucks).

Rubbing Off Filler

In your October issue, we note an article entitled "For Rubbing Off Filler." We are very much interested in securing samples and prices on the patented filler rubbing or wiping materials discussed therein.—M. W. X. Co. (Specialists in Turning and Finishing Lignum-Vitae and other Fancy Hardwoods).

Fexible Lacquer for Fabrics

In regard to the inquiry of S. I. M. Co., for flexible lacquers for fabrics, we would be pleased to have you send us the name of this concern so that we may get in touch with them. This inquiry was in your October, 1934, issue (page 4).—Q. M. Co. (Mfrs. of Artificial Leather, Paper, Fabric, Felt).

Luminous Paints

Please let us know at your earliest convenience where we can purchase luminous paint in the city of Toronto, Ontario.—T. B. O. & X. (Paint & Wallpaper Stores).

Venetian Blind Finishing

On page 6 of your September issue we notice an inquiry signed by the S. O. B. Co. asking for information on roller-spread lacquers for slats. You probably know that we are very prominent in the field of finishing Venetian blind slats and we believe that our experience would be of

value to the inquirer. We have a highly specialized line of lacquers for this work and will appreciate the opportunity of contacting this company. We will, therefore, be glad to have you either refer them to us or else give us their name. . . —B & X Corp.

We were interested in the inquiry in your September issue from the S. O. B. Co. (Watercraft), regarding a machine for applying lacquer to Venetian blind slats. One of our Licensees in this country is interested in this method for coating wallboards with synthetic lacquer, and we wondered if you could forward the same information asked for by the S. O. B. Co. to us.

We should also like to mention how much we appreciate your magazine.—Oxvar Limited (Processes for the reproduction of natural wood grains and marbles) British Columbia House, 3, Lower Regent St., London, S. W. 1, ENGLAND.

Comments on Finishing Room Fire—III

I have read the article "Finishing Room Fires—III" in Oct. issue (page 43), and would suggest that it gives a misleading impression of the relative importance of dirty oily rags and gasoline. Dirty oily rags are, of course, undesirable and are the cause of many fires due to spontaneous ignition. Gasoline in open pails is, however, in my opinion, a much worse hazard. The fire described in this item seems to me to be clearly due to gasoline in an open pail. While the presence of the oily rags may have contributed somewhat to the extent of the fire, the gasoline was primarily responsible. — R. S. MOULTON, Technical Secretary of National Fire Protective Association.

We Have Stick Shellac Color Cards, Too

We have read your article on page 36 of the October issue regarding "Stick Shellac Color Card" of the Golden Star Polish Co. of Kansas City, Mo. It may interest you to know that we have always put out a very large display card on Shellac Sticks, inasmuch as they are an out-and-out specialty with us, as you can see from our name. In order that you may have one of these cards for your own reference we are sending you one today.—Universal Shellac Stick Co., New York, N. Y.

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EDITORIAL

Finishes for Fabrics, Paper, Leather, Rubber, etc.

An unusual number of inquiries are coming in for finishing materials, methods and equipment suitable to use on various surfaces other than wood and metal—for fabrics, papers, natural and artificial leathers, composition material, rubber, etc. For some years the trend in many industries has been to utilize a number of different materials in the manufacture of various new and improved products. This, together with the trend toward modernistic and streamlined designs and striking decorative finishes to add utility features and to attract favorable attention, thrust forth unusual problems in finishing both as to materials and equipment.

How this trend affects the furniture industry, for example, is touched upon by a writer in the magazine, "Marketing and Design," who says:

"More and more the architect is beginning to control the design of furniture. . . . The type of architectural design made possible by the new structural revolution has stimulated the invention of furniture designers who have emptied their minds of traditional prejudices. . . .

"Perhaps in furniture making in the future, we shall gain all the decorative relief that we need from highly individualized products, from the work of artist-craftsmen who design and make things with their own hands. When standardized materials are used with imagination they do not produce monotony. All sorts of materials have now been standardized in various units.

"The most exciting and interesting furniture will be designed when the artist-craftsmen, who have hitherto been using structural materials, turn their attention to the new materials."

Industrial management is becoming aware of these changes and is now investigating the characteristics and possible uses of new structural materials, and is seeking information about how their surfaces should be treated, what finishing materials can be used on them effectively, and how they can best be applied to produce durable and truly decorative effects.

Finishes and Colors at London Motor Show

According to Mr. P. H. Chase, Duco Color Advisory Service, all of the 458 cars exhibited at the 28th International Motor Exhibition in London recently, were finished in nitrocellulose lacquer,

including three in pearl essence and 15 in metal lacquer. No fabric bodies appeared. Dark colors predominated, particularly black. A decrease in maroon was noted. Many cars were finished in light and medium grays, and to a lesser degree in the lighter shades of tan and brown. Light blues were not in evidence, with the exception of one or two bodies, although dark blue was about the same as last year. There were both light and dark greens, a few yellows, and the usual scattering of sport models in fire-engine red.

Paint, Varnish and Lacquer Sales Above 1933

The U. S. Department of Commerce news release on the sale of paint, varnish and lacquer products for September, 1934, as based on sales reported by 586 manufacturers, shows an increase over September of last year; in fact all this year the sales have been above those reported for the corresponding months of last year—and of course, from May, 1933, the 1933 graph line topped the 1932 line.

Venetian Blind Finishing

A number of new manufacturers of Venetian blinds have become interested in how to finish the ⅛x2⅜-in. wood slats on all four sides simultaneously. Older concerns, of course, have purchased or developed special equipment for this purpose and guard it carefully from the eyes of all visitors. Recently, the Editor was permitted to see, in blueprint form, one of the "4-side" machines for automatically painting or enameling slats for Venetian blinds. It is a simple outfit with two sets of rollers, and is operated by one man who stands at the rear and wears tack-pointed gloves to handle the freshly finished slats, laying them on tack-pointed racks to dry.

In preparation for automatic machine finishing, the unpainted slats are stacked flatwise in a magazine rack and pulled forward by a hand lever, one at a time, into the hard-rubber feed rolls. Next, the slat moves into a set of four paint rollers (similar to graining rollers) all centered in one plane. The bottom roller runs in a shallow pan of finishing material; the top paint roller is supplied by a small stream from a small hole in a container hung above it. Overflow, properly directed from the top roller, supplies the two side rollers so that both sides and both edges of the slats are painted simultaneously. The top and bottom rollers are the same width as the slats. Overflow from the top and side rollers runs into the pan which supplies

paint to the bottom roller. When this pan begins to become full, part of its contents is poured back into the container above the top roller.

All paint rollers and feed rollers are 4-in. in diameter and the machine will turn out 7,200 lineal feet of slats in about four hours. The machine has suitable adjustments to permit smooth efficient operation at correct speed. Production, 600-sq.ft. of 2⅝-in. slats in an 8-hour day, two coats.

Save the Sapwood, Use Shading Stain

IN A FACTORY that makes bedroom furniture I was surprised recently to see, in the shipping department, finished walnut beds with the sapwood showing up in light faded color on the foot end panels — in contrast to the rich dark color of the heartwood. When I asked the manager of the finishing room about shading the sapwood to match the dark heart wood, he answered: "Oh that would show bad and dobbed-up in spite of what we could do in the finishing room. That's the way the wood grows, it either goes as is, or it has to be culled out in the machine department."

Here is evidence of either ignorance or carelessness, perhaps both. The skillful use of good shading stain would have made that light colored sapwood match the dark richly heartwood perfectly.

At another time I was called to see some walnut lumber just going through the planer. It was for several library tables—each top 4-ft. wide, 12-ft. long and 2-in. thick, with a very massive base, all in solid walnut. The manufacturer was eager to put out a good job and he consulted me about the sap in the walnut planks, asking if it could be matched up with the heartwood by staining, or if it would have to be culled out.

After looking over the lumber and finding it sound I assured him the sapwood could be used. Accordingly he had the lumber jointed and glued up. When ready for the finishing room, he called me again; he felt that he should have cut out the sapwood. Now I admit it did look pretty bad. Imagine a table top of solid walnut 4-ft. wide by 12-ft. long and 2-in. thick, with about seven or eight joints running through the length, and one side of a joint straight dark walnut and the other side an irregular line of sap walnut varying from ¼-in. to 2½-in. wide. The pieces should have been matched up dark edge to dark edge and sap edge to sap edge. Well, I spent about an hour per table treating the sap parts. After the filling operation I called in the manufacturer. He was well pleased and said it was a beautiful job. No one could find where the sap streaks had been. He called in his factory superintendent who, when he saw the tables, said, "If I had known they would finish like that I could have saved several more dollars in lumber on those tables."

Now, here is the point I want to

bring out: The closer the finishing foreman and the factory superintendent work together, the better for the firm. There are always some problems to be worked out and obstacles to be overcome, and if taken up at the proper time a lot of grief and money can be saved. I venture to say that those table tops would have cost double the amount if the workmen had culled out all the sap walnut . . . and even then the finished tables would not have been as uniformly colored and beautifully finished.

True, in these days of keen competition, production finishing does not encourage the spending of much extra time for sap shading, but if the finisher works hand in hand with the factory superintendent he will find that due allowance will be made for that purpose. With a little practice the finisher will find ways to help overcome much grief in the factory, and the credit due him is sure to come in time.—EMIL C. TIMM.

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